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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,558	06/22/2006	Mohamed Bouzekri	284875US0PCT	2097

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
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EXAMINER	
VELASQUEZ, VANESSA T	

ART UNIT	PAPER NUMBER
1733	

NOTIFICATION DATE	DELIVERY MODE
12/22/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/565,558	BOUZEKRI ET AL.	
	Examiner	Art Unit	
	Vanessa Velasquez	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 December 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-5,7,8 and 13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-5,7,8 and 13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/18/2009 has been entered.

Definitions

"Skin-Pass" will be interpreted in light of the definition provided by the Glossary of Metallurgical and Metalworking Terms (ASM Handbooks Online).

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 3, 5, 7, 8, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guelton et al. (US 6,358,338 B1) in view of Kim et al. (WO 93/13233), and further in view of Ferguson ("Design for Deformation Processes," Vol. 20, ASM Handbooks Online).

Regarding claims 3, 7, and 13, Guelton et al. teach a process for making an iron-carbon-manganese steel strip. The method comprises obtaining liquid metal from a smelting process, casting a steel strip between rollers, hot-rolling the strip, and coiling the hot-rolled strip (col. 1, lines 63-65; col. 2, lines 18-24). The steel has a composition as follows in percent by weight, with the balance being iron and impurities originating from smelting (col. 1, lines 56-65):

Element	Claim 3	Element	US 6,358,338
C	0.5-0.7	C	0.001-1.6
Mn	17-24	Mn	6-30
Si	0-3	Si	0-2.5
Al	0-0.050	Al	0-6
S	0-0.030	S+Se+Te	0-0.5
P	0-0.080	P+Sn+Sb+As	0-0.2
N	0-0.1	N	0-0.3
	One or more of		
Cr	0-1	Cr	0-10
Mo	0-0.40	Mo+W	0-0.5
Ni	0-1	Ni	0-10
Cu	0-5	Cu	0-5
Ti	0-0.50	V+Ti+Nb+B+Zr+rare earths	0-3
Nb	0-0.50		
V	0-0.50		

Guelton et al. also teach that the coiling temperature is not strictly confined to a particular range (col. 4, lines 19-22) but warns that the temperature should not be so high to promote grain growth (col. 4, lines 22-27). Therefore, it would have been obvious to one of ordinary skill in the art to coil the steel strip at a low temperature, such as within the claimed range, to ensure that grains do not coarsen, which would decrease properties such as strength if allowed to occur.

Guelton et al. is silent as to the heated temperature of the slab. Kim et al., also drawn to a process for producing a high-strength, austenitic, high manganese steel,

teach that a preferred hot-rolling temperature is 1100-1250°C with a finish temperature ranging from 700°C to 1000°C (page 11, lines 8-11). The hot-rolling temperature is chosen to ensure uniform heating of the steel, and the finish temperature is chosen to ensure that productivity is not decreased (page 11, lines 12-17). It would have been obvious to one of ordinary skill in the art to hot-roll the steel strip at the temperatures taught by Kim et al. in the process of Guelton et al. for the beneficial reasons stated above.

Guelton et al. in view of Kim et al. are silent as to the length of time between the hot-rolling and cooling operations. However, Ferguson teaches that the hold time (delay) after hot working and before a subsequent operation induces recrystallization and modifies grain size depending the duration of the hold (page 4, first full paragraph). Specifically, the grains become smaller, more refined during the hold time (page 4, first full paragraph). Thus, the hold time is a result-effective variable because varying the hold time produces grains of differing sizes, which in turn varies the mechanical properties of the metal workpiece. It has been held that optimizing a result-effective variable involves only routine skill in the art (MPEP § 2144.05 II). In addition, it would have been obvious to one of ordinary skill in the art to vary the hold time in order to obtain a product with a specific grain structure and having a particular set of desired properties.

Regarding claim 5, Guelton et al. teach that the steel strip may be subjected to cold rolling (cold deformation operation) after hot rolling and coiling (col. 4, lines 31-35).

The reduction may range from 10% to 90% (col. 4, lines 35-36), which overlaps the claimed range.

Further regarding claim 7, Guelton et al. further teach that after hot-rolling, the strip may be cold-rolled in one or more steps and annealed to produce an austenitic steel having grains less than 10 microns in size (col. 4, lines 15, 31-45). Annealing may occur at 800-850°C for 60 seconds to 120 seconds (col. 4, lines 55-57). Cooling rates can be as fast as 100-6000°C/s depending on the thickness of the strip and the quenchant used (col. 4, lines 49-54).

Regarding claim 8, Guelton et al. teach that the steel strip may be subjected to an additional deformation process such as a skin-pass operation (light cold rolling). The degree to which the strip is deformed will depend on the shape and dimensions desired in the end product. Thus, the claimed deformation ratio may be determined by a person of ordinary skill in the art.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guelton et al. in view of Kim et al. and further in view of Ferguson, as applied to claim 3 above, and optionally further in view of Andersson et al. (US 4,648,440).

Regarding claim 4, Guelton et al. teach casting the steel composition between rollers to form a strip (col. 2, lines 18-24), but do not teach that the rollers are made of steel. Steel rollers, however, would not constitute a patentable difference over the prior art because they are conventionally used in the art. Andersson et al., for instance, disclose the use of magnetic steel rollers in a continuous casting apparatus (col. 1, lines

38-41). Thus, it would have been obvious to one of ordinary skill in the art to have utilized steel rollers in the process of Guelton et al. because it would have been within the ordinary capabilities of a one skilled in the art to have applied a well-known device to a well known casting step with the predictable result that steel can be successfully cast by rollers made of steel (col. 1, lines 22-27).

5. Claims 3, 5, 7, 8, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guelton et al. (US 6,358,338 B1) in view of Hoffmann et al. (US 2003/0145911 A1, hereinafter Hoffman '911) or Hofmann et al. (WO 02/101109 A1, hereinafter Hofmann '109) and further in view of Ferguson ("Design for Deformation Processes," Vol. 20, ASM Handbooks Online).

It is noted that Hoffmann '911, which is the national stage application of Hofmann '109, will serve as the English translation of Hofmann '109. All citations made in this Office action will refer to Hoffmann '911 unless indicated otherwise.

Regarding claims 3, 7, and 13, Guelton et al. teach a process for making an iron-carbon-manganese steel strip. The method comprises obtaining liquid metal from a smelting process, casting a steel strip between rollers, hot-rolling the strip, and coiling the hot-rolled strip (col. 1, lines 63-65; col. 2, lines 18-24). The steel has a composition as follows in percent by weight, with the balance being iron and impurities originating from smelting (col. 1, lines 56-65):

Element	Claim 3	Element	US 6,358,338
C	0.5-0.7	C	0.001-1.6
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Mo	0-0.40	Mo+W	0-0.5
Ni	0-1	Ni	0-10
Cu	0-5	Cu	0-5
Ti	0-0.50	V+Ti+Nb+B+Zr+rare earths	0-3
Nb	0-0.50		
V	0-0.50		

Guelton et al. do not specify a preferred heated temperature of the slab, a preferred end-of-rolling temperature, or a preferred coiling temperature as claimed. Hoffmann '911, drawn to the production high manganese and high carbon steels, discloses the conventional steps of hot rolling, cold rolling, and annealing. Hoffmann '911 further discloses heating the steel to 1100°C or 1150°C, ensuring a final hot rolling temperature of at least 800°C, and coiling the steel at a temperature of 450-700°C (paragraphs [0022], [0031]). The hot rolling temperatures followed by lower coiling temperatures enable the carbon and boron in the steel to enhance the tensile strength and yield point of the steel while simultaneously keeping the elongation within an acceptable range (paragraph [0023]). Furthermore, the upper limit of the coiling temperature ensures that the steel does not become brittle (paragraph [0024]). It would have been obvious to one of ordinary skill in the art to have incorporated the hot rolling and coiling temperatures of Hoffmann '911 into the process of Guelton et al. because of the beneficial properties, e.g., strength and prevention of embrittlement, such a sequence would impart to the steel of Guelton et al.

Guelton et al. in view of Hoffmann '911 are silent as to the length of time between the hot-rolling and cooling operations. Ferguson teaches that the hold time (delay) after hot working and before a subsequent operation induces recrystallization and modifies grain size depending the duration of the hold (page 4, first full paragraph). Specifically, the grains become smaller, more refined during the hold time (page 4, first full paragraph). Thus, the hold time is a result-effective variable because varying the hold time produces grains of differing sizes, which in turn varies the mechanical properties of the metal workpiece. It has been held that optimizing a result-effective variable involves only routine skill in the art (MPEP § 2144.05 II). In addition, it would have been obvious to one of ordinary skill in the art to vary the hold time in order to obtain a product with a specific grain structure and having a particular set of desired properties.

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6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guelton et al. in view of Hoffman '911 or Hofmann '109 and further in view of Ferguson, as applied to claim 3 above, and optionally further in view of Andersson et al. (US 4,648,440).

Regarding claim 4, Guelton et al. teach casting the steel composition between rollers to form a strip (col. 2, lines 18-24), but do not teach that the rollers are made of steel. Steel rollers, however, would not constitute a patentable difference over the prior art because they are conventionally used in the art. Andersson et al., for instance, disclose the use of magnetic steel rollers in a continuous casting apparatus (col. 1, lines 38-41). Thus, it would have been obvious to one of ordinary skill in the art to have utilized steel rollers in the process of Guelton et al. because it would have been within the ordinary capabilities of a one skilled in the art to have applied a well-known device to a well known casting step with the predictable result that steel can be successfully cast by rollers made of steel (col. 1, lines 22-27).

Response to Arguments

7. Applicant's arguments have been considered but are not persuasive. The Examiner's responses to the declaration filed 11/18/2009 and to Applicant's remarks associated with said declaration are found below.

Acknowledgment of Declaration Under 37 CFR 1.132

8. The declaration under 37 CFR 1.132, filed 11/18/2009, is insufficient to overcome the rejection of claims 3-5, 7, 8, and 13 based upon 35 U.S.C. 103(a) as set forth in the last Office action for at least the following reasons:

The declaration does not compare results between the closest prior art and the claimed invention (MPEP 716.02(e)). This comparison is essential for determining whether the claimed coiling temperatures actually produce a significant improvement in strength not recognized by the prior art. It should be noted that Guelton discloses a specific embodiment wherein the tensile strength is 1152 MPa, the elongation at break is 62.5%, and the precipitate carbides and carbonitrides are limited to 3% or less (col. 3, lines 25-28; col. 5, TABLE 1). The product of tensile strength and elongation at break is 72,000, which exceeds the values in Figure A of the declaration and in original claims 1, 2, and 6. The amount of precipitates also overlaps the range in Figure 5 of the specification. Therefore, the strength of the steel produced by the claimed method would not appear to pose a significant improvement over the prior art (MPEP 716.02(a)).

With respect to Figure B, Applicant states that the data show that there is virtually no grain growth of the steel of the instant invention when coiled at 700°C; therefore, a person having ordinary skill in the art would have no metallurgical reason to coil at 700°C or less. It should be noted, however, that Figure B also shows grain growth at temperatures above 700°C. For that reason alone, one of ordinary skill in the art would be deterred from coiling at such a relatively high temperature. In addition, higher coiling temperatures would mean greater energy consumption, which would appear to be impractical from an economical standpoint. Thus, the declaration does not appear to overcome the previous rejections applied.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vanessa Velasquez whose telephone number is 571-270-3587. The examiner can normally be reached on Monday-Friday 9:00 AM-6:00 PM ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached at 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Vanessa Velasquez/
Examiner, Art Unit 1733
/Scott Kastler/
Primary Examiner, Art Unit 1733